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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,576	03/31/2000	Robert G. Field	SUN1P252/P4198	2536

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EXAMINER

KISS, ERIC B

ART UNIT

PAPER NUMBER

2122

DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/540,576

Applicant(s)

FIELD ET AL.

Examiner

Eric B. Kiss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 8 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

Claims 1-18 have been examined.

### *Information Disclosure Statement*

1. The following non-patent documents were found that appear to indicate pre-filing public presentation by the inventors of material related to the invention disclosed in the instant application:

Birds of a Feather, '98 JavaOne conference schedule, [online] 1998 [retrieved on 2002-07-11], Retrieved from the Internet <URL:

<http://java.sun.com/javaone/javaone98/bofs.html>>.

See in particular “The New Java Platform Debugger Architecture” on page 34 of 44.

Birds-of-a-Feather Information: The Java Platform Debugger Architecture, '99

JavaOne conference schedule, [online] 1999 [retrieved on 2002-07-12],

Retrieved from the Internet <URL:

<http://industry.java.sun.com/javaone/99/event/0,1768,1022,00.html>>.

Please provide to the Office materials/documents of these presentations so they can be throughout considered.

*Drawings*

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “VM” has been used to designate both “a first Java Virtual Machine” and “the debuggee” in Figures 2a and 2b (see page 9, line 19 and page 10, line 2). Also in the same figures, the reference character “JVMDI” apparently indicates two different features although only one is described in the specification (see page 10, lines 4-6). Correction is required.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: “DEBUGGER”, “DEBUGGER PROCESS”, and “DEBUGGEE PROCESS” in Figures 2a and 2b. Correction is required.
4. Further, the horizontal lines in Figures 2a and 2b separating the regions labeled “VM” from the regions lying above on the left side of the figures appear to indicate that the Java Virtual Machine (VM) is separate from, and not comprising the front-end component described in the specification as belonging to the debugger program running on the VM. Correction is required.
5. In Figures 2a and 2b, the meaning of the labels “DEBUGGER” and “DEBUGGEE” are unclear.

In the described embodiment, the word debugger appears in the following terms: “Java debugger” (see page 9, line 18), “debugger program” (see page 9, line 20), and “debugger

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application” (see page 9, line 22). Although “Java debugger” and “debugger program” can be assumed to be equivalent based on the context in which they are presented, the term “debugger application” describes a separate concept, and correction is required to indicate the proper drawing reference.

In the specification, the term debuggee is defined as: the process that is being debugged consisting of the application being debugged, running on a second Java Virtual Machine, and a back-end debugger agent (“back-end”) responsible for communicating requests from the debugger front-end to the debuggee (VM) and for communicating the response back to the front-end (see page 9, lines 23-24 and page 10, lines 1-6). In the figures, “DEBUGGEE” and “VM” appear to indicate two separate ideas based on the space and horizontal lines between the labels. Further complicating this issue, the label “DEBUGGER PROCESS” is present, which could also be interpreted as the described debugger. Correction is required.

6. Applicant is required to submit proposed drawing corrections in reply to this Office action. However, formal corrections of the noted defects may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing corrections will result in the abandonment of the application.

### *Specification*

7. The abstract is objected to because of the following informality: On line 3, “an communication protocol” should read “a communication protocol”.

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The disclosure is objected to because of the following informalities:

8. The priority claim paragraph (page 1, paragraph 1) requires updating. Please provide the missing application number and filing date.
9. In page 2, line 12, “method” appears to be missing the preceding article “a”.
10. In page 9, line 13, “(JDI) and the” should read “(JDI), the” to indicate the series of three interfaces.
11. The terms “debuggee (VM)” (page 10, line 2) and “debuggee VM” (page 10, line 5) do not exactly match although the same item is discussed in both instances. It is unclear whether “debuggee” is an adjective modifying “VM” or if “VM” is intended as a parenthetical reference.

Appropriate correction is required.

#### ***Claim Objections***

12. Claim 8 is objected to because of the following informalities: The article “A” is used preceding reference to the method of claim 1. Claim 8 is missing a period (.) at the end.

Appropriate correction is required.

13. Claim 18 is objected to because of the following informalities: On the second line of the claim, “an communication protocol” should read “a communication protocol”. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15. Claims 4, 12, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "second virtual machine" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. Reference to a "first virtual machine" appears only in Claim 2, on which this claim is not dependent.

Claim 12 recites the limitations "front-end debugger code" and "back-end debugger code" in lines 5-6 of the claim. There is insufficient antecedent basis for these limitations in the claim.

Claim 18 recites the limitations "front-end code" and "back-end code" in lines 3-4 of the claim. There is insufficient antecedent basis for these limitations in the claim.

### ***Claim Rejections - 35 USC § 102***

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. Claims 1, 8, 12, 15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,787,245 to You.

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You teaches inputting a formal specification (TPrimitiveConnection; see column 52, lines 8-27) into a code generator (client debugger object) which in turn parses the formal specification to generate a front-end debugger (client debugger object; see column 4, lines 28-37) portion (connection object; see column 63, lines 25-28) and a back-end debugger (server debugger object) portion (reverse connection object; see column 57, lines 35-41). A communication protocol is enabled between the front-end debugger (client debugger object) and the back-end debugger program (server debugger object), wherein the communication protocol is defined by the formal specification (TPrimitiveConnection). You further discloses a computer readable medium including computer program code (see column 80, lines 33-65) and a computer system (see column 79, lines 13-55) for performing the aforementioned actions.

### ***Claim Rejections - 35 USC § 103***

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 2, 3, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over You as applied to claims 1 and 12, respectively, above.

As per claims 2 and 3, although You discloses with such a C++ object-oriented programming language implementation and fails to disclose a Java object-oriented programming language method, one having ordinary skill in the computer art would recognize that the You



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system can be implemented using a wide number of known object-oriented programming languages, including the Java programming language. Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to utilize Java programming language code running on a virtual machine to implement the method of You. One would be motivated to do so in order to gain the platform independence that the Java programming language provides.

As per claim 9, although You fails to teach the use of a declarative language, one having ordinary skill in the computer art would recognize that a specification could be written in any programming language style, including such a known declarative language. One would be motivated to do so because a declarative language is rule-based and is best suited to implementing a specification that is also rule-based. Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to write the formal specification of You in a declarative language because it is best-suited for such a purpose.

As per claim 13, although You discloses with such a C++ object-oriented programming language implementation and fails to disclose a Java object-oriented programming language method, one having ordinary skill in the computer art would recognize that the You system can be implemented using a wide number of known object-oriented programming languages, including the Java programming language. One would be motivated to do so in order to gain the platform independence that the Java programming language provides. Further, although You fails to teach the use of a declarative specification language, one having ordinary skill in the computer art would recognize that a specification could be written in any programming language style, including such a known declarative language. One would be motivated to do so because a

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declarative language is rule-based and is best suited to implementing a specification that is also rule-based. Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to write the formal specification of You in a declarative language because it is best-suited for such a purpose and to utilize Java programming language code running on a virtual machine to implement the front-end of the You method to gain platform independence.

20. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over You as applied to claim 1 above, and further in view of U.S. Patent No. 5,901,315 to Edwards.

The phrase "second virtual machine" in claim 4 is interpreted here to mean any virtual machine that the back-end debugger program directly controls and communicates with in view of the 35 U.S.C. 112, second paragraph rejection applied to claim 4.

You fails to teach the back-end debugger program, a portion of which comprising C language code, directly controlling and communicating with a virtual machine. However, Edwards teaches a back-end debugger program (debug engine, DE, and BE) comprising C language code (see column 4, lines 35-38) that directly controls and communicates with a virtual machine (see Figure 3). One having ordinary skill in the computer art would recognize that a back-end debugger program could be written in any known programming language that allows an interface to be established between a debuggee program and a debugger front-end. Further, a virtual machine that is controlled by and communicates with the debugger back-end is commonly used when the application being debugged comprises Java language code. It would have been obvious to one having ordinary skill in the computer art at the time the invention was

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made to implement the teachings of Edwards into the method of You in order to get the advantage of being able to interface with and debug a Java language program. One would be motivated to do so for debugging an application comprising Java language code using a non-Java language user interface.

21. Claims 6, 10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over You as applied to claims 1, 8, and 13 above, and further in view of Field et al., "The New Java Platform Debugger Architecture," contained in Birds of a Feather, '98 JavaOne conference schedule (hereinafter Field et al.).

Although You discloses with such a protocol defined by a TPrimitiveConnection class, one having ordinary skill in the computer art would recognize that any known communication protocol could be used to implement You's method and system, including a Java Debug Wire Protocol as once taught by Field et al. as a communication protocol between a debugger and a debuggee. One would be motivated to use the Java Debug Wire Protocol because it allows for cross-platform remote debugging. Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to incorporate the Java Debug Wire Protocol into the method and system of You to perform cross-platform debugging.

22. Claims 7, 11, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over You as applied to claims 6, 8, and 15 above.

As per claims 7, 11, and 16, although You does not disclose a method of, or computer code for, generating HTML documentation of the protocol, one having ordinary skill in the

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computer art would recognize that the specific procedures and data packet formats necessary for sending and receiving data for a particular protocol are necessary in order to be able to implement such. One would be motivated to generate documentation of a communication protocol to provide human-readable protocol documentation information to software developers enabling them to implement the protocol. Further, HTML is a platform-independent document format, and one would be motivated to use HTML for the purpose of generating the documentation to allow it to be read on different platforms. Therefore, it would have been obvious to one having ordinary skill in the computer art at the time the invention was made to incorporate the generation of HTML protocol documentation into the method and computer code of You to allow software developers using various computer platforms to read and understand the proper procedures involved in implementing the protocol.

As per claim 17, see rationale provided in item 21 above.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

23. The following U.S. patent documents are cited to further illustrate the state of the computer art as related to debugging systems having front-end and back-end components:

U.S. Patent No. 5,815,653 to You et al.

U.S. Patent No. 6,158,045 to You

U.S. Patent No. 5,794,046 A to Meier et al.

U.S. Patent No. 6,058,393 A to Meier et al.

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U.S. Patent No. 6,324,683 to Fuh et al.

24. The following foreign patent documents are cited to indicate for the record existing co-pending foreign patent applications:

European Patent Office Application No. EP 1071016 A2 to Field et al.

Japanese Patent Office Application No. JP 2001101011 A to Field et al.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Kiss whose telephone number is (703) 305-7737. The examiner can normally be reached on Mon. - Fri., 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Morse can be reached on (703) 308-4789.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, DC 20231

**Or faxed to:**

(703) 746-7239 (for formal communications intended for entry)

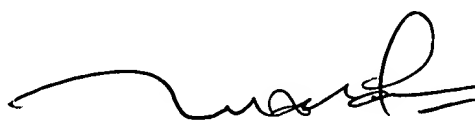
**Or:**

(703) 746-7240 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, 22202, Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

EBK  
July 15, 2002



**TUAN Q. DAM**  
**PRIMARY EXAMINER**